

CLAIM AMENDMENTS

1. - 39. (Canceled)

40. (Currently amended) Apparatus for use in tissue engineering, said apparatus comprising:

a scaffold structure being formed of a plurality of horizontal layers of melt extrusion filament materials;

vertical walls forming each of said plurality of horizontal layers of material, said walls of each layer of said plurality of horizontal layers each having a height, each being horizontally separated from one another, and defining an orientation;

adjacent pairs of said vertical walls of each of said plurality of horizontal layers of material forming channels therebetween, said channels having a depth and a width created by said height of said walls and said horizontal separation of said adjacent pairs of said vertical walls, respectively;

adjacent layers in said plurality of horizontal layers of material being in different orientations to one another wherein said orientation defined by adjacent ones of said ~~each~~ layers of said walls of said plurality of horizontal layers differ from one another, said different orientations providing a group of cross-points to allow adhesion between said adjacent layers and providing interconnectivity between said channels throughout said scaffold structure-;

said scaffold horizontal layers of melt extrusion materials comprising at least one of PCL and PCL/HA, formed with an FDM 3D

MODELER rapid prototyping system from STRATASYS, INC., the FDM system operating in X, Y, and Z axes;

wherein the orientations of said walls are in lay-down patterns forming horizontally disposed triangles.

41. - 42. (Canceled)

43. (Original) Apparatus for use in tissue engineering according to claim 40 wherein said vertical walls have a linear shape.

44. (Original) Apparatus for use in tissue engineering according to claim 40 wherein said vertical walls have a curved shape.

45. - 47. (Canceled)

48. (Currently amended) Apparatus for use in tissue engineering ~~according to claim 45,~~ said apparatus comprising:

a scaffold structure being formed of a plurality of horizontal layers of melt extrusion filament materials;
vertical walls forming each of said plurality of horizontal layers of material, said walls of each layer of said plurality of horizontal layers each having a height , each being horizontally separated from one another, and defining an orientation;

adjacent pairs of said vertical walls of each of said plurality of horizontal layers of material forming channels therebetween, said channels having a depth and a width created by said height of said walls and said horizontal separation of said adjacent pairs of said vertical walls, respectively;

adjacent layers in said plurality of horizontal layers of material being in different orientations to one another wherein said orientation defined by adjacent ones of said each layer of said walls of said plurality of horizontal layers differ from one another, said different orientations providing a group of cross-points to allow adhesion between said adjacent layers and providing interconnectivity between said channels throughout said scaffold structure;

said scaffold horizontal layers of melt extrusion materials comprising at least one of PCL and PCL/HA, formed with an FDM 3D MODELER rapid prototyping system from STRATASYS, INC., the FDM system operating in X, Y, and Z axes;

wherein said orientations of said walls are in a lay-down patterns ~~of 0°/72°/144°/36°/108°~~ forming five-sided polygons.

49. (New) The apparatus in accordance with claim 40 wherein the size of the pores is 200-700 um.

50. (New) The apparatus in accordance with claim 48 wherein the size of the pores is 200-700 um.

51. (New) The apparatus in accordance with claim 40 wherein said scaffold structure horizontal layers are fabricated with different lay-down patterns.

52. (New) The apparatus in accordance with claim 51 wherein the total porosity of the different lay-down patterns is substantially identical.

53. (New) The apparatus in accordance with claim 48 wherein said scaffold structure horizontal layers are fabricated with different lay-down patterns.

54. (New) The apparatus in accordance with claim 53 wherein the total porosity of the different lay-down patterns is substantially identical.

55. (New) The apparatus in accordance with claim 48 wherein said vertical walls exhibit at least one of a linear shape and a curved shape.